



<b>WRL reference</b>	M04 D04
<b>Module</b>	M04 Ecosystems – Tropical Forests
<b>Data set</b>	D04 Abundance of bat feeding guilds in the Iwokrama Forest, Guyana

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### Data collection methods:

Mist nets were used to catch bats in the forest understorey. Mist nets are a fine nylon net with a small mesh made from many threads. Each net was 12m long and 2.6 metres high, and 18 nets were placed in the forest in pairs (forming a T shape) every 50m throughout a 100m x 100m grid. The nets were opened at sunset (6pm), and closed at midnight. Each site was surveyed for 4-6 nights and visited on two or three occasions during the months of July and August.

Bats fly into the net where they get tangled. The nets were checked every 45 minutes, and bats were then extracted from the net unharmed. Each bat was then identified using field guides. Bat identification usually requires measurements of the bats to be taken because some species look very similar to one-another. The principal measurement for this is the forearm part of the wing.

### Analysis methods:

You are going to sort the 'raw' data so you can then gather information to answer the following TWO Research Questions:

1. Which feeding guilds are represented by the greatest numbers of bats in the Iwokrama Forest?
2. How does the abundance of bat feeding guilds vary between sites across the Iwokrama Forest?

Guilds of bats are groups who feed in a similar way so it is a classification scheme based on behaviour and not on morphology or structure. The guilds of bat are:

- **Frugivore: fruit eating.**
- **Insectivore: insect eating.**
- **Nectarivore: nectar eating.**
- **Omnivore: eat plant products and animals.**
- **Sanguinivore: blood eating.**
- **Carnivore: eat frogs, lizards, fish and even birds.**

**There are 5 sample sites:** If you read the Research site description in the Associated Resource folder it will help you understand the layout of this research area.

***NOW OPEN THE FILE "BLANK.xls" (located in the folder 4. Data for tasks)  
(Spreadsheet programs vary but this is based on Office 2011 Excel for Mac OS)***

If you look at the base of the spreadsheet you will see TWO tabs – one shows you the RAW data and the other provides a table to complete once you have carried out your initial analysis.

Now click on the raw data. You will see that it has NOT been ordered and you will need to do this if you are going to count the data easily and accurately and then transfer to the blank summary



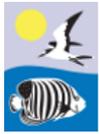


table.

### Ordering the data:

- Use your cursor to highlight the entire table but leave the top row UNMARKED.
- Now go to the tool bar and click on the data tab.
- Now find the Sort icon and click so you get a small option menu.
- Find Custom sort and sort on Column D (feeding guild). This will then put all of your data listed by feeding guilds.
- Now repeat this process but sort by column A (site). If all goes well you should now have a list by site and within each site the feeding guilds listed.
- You can check by loading the calculated spreadsheet in the data folder.

### Putting the data into the table:

There are many ways to do this but the simplest is probably the best as the quantity of data is not massive.

### Suggestions:

- Use a calculator (or your mental maths skills!!) and simply go down the list adding up the categories required. You can then use the **SUM** function to get the total amounts at the bottom of the table.
- If you feel that the numbers are too great, you can again use the SUM function in Excel which involves highlighting the figures you wish to add together and getting a total shown in a single cell. E.g. The number of frugivores found in Rock Landing. If you need further help ask your supervisor.
- You can check your calculations by looking at the calculated table – **MO4 D04 CALCULATED**.
- You can now answer the TWO research questions.

### Illustrating your data:

One of the best ways to illustrate your findings is to draw a graph. Using the column chart type to construct TWO graphs to support your answers each Research Questions.

**IF YOU OPEN THE FILE “MO4 D04 COMPLETED.xls” YOU CAN SEE SOME EXAMPLE GRAPHS.**

Finish by reading the Answers to both Research Questions: this has been written by the Research Scientist involved in producing this data set.

